



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Our Case No. 04-06)

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In the application of:)
Yun Namkoong et al.)
Serial No.: 10/797,384)
Filed: March 10, 2004)
For: Method and Apparatus for Retrying Reading or)
Writing of Data)

Examiner: Hung Q. Dang

Group Art Unit: 2621

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

TRANSMITTAL LETTER

In regard to the above identified application:

1. We are transmitting herewith the attached: **Revised Appellant's Appeal Brief; and Return Receipt Postcard**

2. With respect to additional fees:

- ☒ A. No additional fee is required.
☐ B. An additional fee is required and has been calculated as shown below:

CLAIM AS AMENDED						
(1)	(2) Claims Remaining After Amendment	(3)	(4) Highest No. Previously Paid For	(5) Present Extra	(6) Rate	(7) Additional Fee
Total Claims	* 14	Minus	** 22	0	X \$50.00	\$0.00
Indep. Claims	* 2	Minus	3	0	X \$200.00	\$0.00
				Total Additional Fee For this Amendment --		\$0.00

* If the entry in Column 2 is less than the entry in Column 4, write "0" in Column 5.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, write "20" in this space.

*** Each multiple dependent claim should be counted as the number of claims from which it depends.

☐ C. Attached is a check in the amount of \$_____.

3. CERTIFICATE OF MAILING UNDER 37 CFR § 1.8: The undersigned hereby certifies that this Transmittal Letter and the paper, as described in paragraph 1 hereinabove, are being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 18th day of August, 2008.

By Monica H. Choi
Monica H. Choi
Reg. No. 41,671



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REVISED APPELLANT'S APPEAL BRIEF

In reply to the Notification of Non-Compliant Appeal Brief dated July 21, 2008 which sets a 1-month period for response, Applicants hereby present this Revised Appellant's Appeal Brief.

In particular, Section V Summary of Claimed Subject Matter has been changed to identify and map all independent claims on appeal separately.

I. Real Party in Interest

The real party in interest is Samsung Electronics Co., Ltd., the assignee of record and having a place of business in Suwon-si, Republic of Korea.

II. Related Appeals and Interferences

None.

III. Status of Claims

Claims 4, 6, 10-11, 15, 17, and 21-22 have been canceled. Claims 1-3, 5, 7-9, 12-14, 16, and 18-20 remain rejected in this application, of which claims 1 and 12 are independent claims.

Claims 1-3, 5, 7-9, 12-14, 16, and 18-20 are on appeal.

IV. Status of Amendments

The claims have not been amended after the Final Rejection.

V. Summary of Claimed Subject Matter

Independent claims 1 and 12 are a method and apparatus for retrying reading or writing of data, which one of ordinary skill in the art knows is performed ***after*** an error has occurred in a reading or writing of data for a prior read/write command already executed by the disk apparatus.

In particular, independent claim 1 recites a method of retrying reading or writing of data, comprising:

A. determining a required time period for performing a retrying type of reading or writing of the data; **[Step 52 of FIG. 3, page 7, lines 9-17 of the Present Application.]**

B. terminating retrying of reading or writing of the data if the required time period is greater than a remaining retrying limitation time; **[Step 54 of FIG. 3, page 7, lines 18-24 of the Present Application.]**

determining whether the data is a predetermined type of data; **[Step 38 of FIG. 2, page 6, lines 3-6 of the Present Application.]**

performing the steps A and B only if the data is the predetermined type of data and not performing following steps C, D, and E if the data is the predetermined type of data: [Step 40 of FIG. 2 and Steps 50-58 of FIG. 3 and page 6, line 7 to page 8, line 13 of the Present Application.]

C. determining a total count of retries for the reading or writing of the data; [Step 76 of FIG. 4 and page 8, lines 32-34 of the Present Application.]

D. performing another retry if the total count of retries is not greater than a predetermined maximum number of retries; [Step 78 of FIG. 4 and page 9, lines 1-10 of the Present Application.]

E. terminating retrying of reading or writing of data if the total count of retries is greater than the predetermined maximum number of retries; and [Step 78 of FIG. 4 and page 9, lines 1-4 of the Present Application.]

performing steps C, D, and E only if the data is not the predetermined type of data; [Step 42 of FIG. 2, Steps 70-78 of FIG. 4, and page 8, line 14 to page 9, line 16 of the Present Application.]

wherein a same order of retry types is followed according to a retry table for both when the data is the predetermined type and when the data is not the predetermined type. [Table 1 of page 6 of the Present Application.]

In addition, claim 12 recites an apparatus for retrying reading or writing of data, comprising:

a required time selection portion for determining a required time period for performing a retrying type of reading or writing of the data; [See the Required Time Selection Portion 220

in FIG. 8 of the Present Application for performing this function step (page 12, lines 21-25 of the Present Application)].

means for terminating retrying of reading or writing of the data if the required time period is greater than a remaining retrying limitation time only when the data is of a predetermined type; **[The Time Comparing Portion 230 in FIG. 8 of the Present Application is the means for performing this function step (page 12, line 29 to page 13, line 10 of the Present Application)].**

a data identification unit for determining whether the data is the predetermined type of data; **[See the Data Identification Unit 160 in FIG. 5 of the Present Application for performing this function step (page 11, lines 23-27 of the Present Application)].**

a counting portion for determining a total count of retries of reading or writing of the data; **[See the Counting Portion 320 in FIG. 10 of the Present Application for performing this function step (page 14, lines 12-16 of the Present Application)].**

means for performing another retry if the total count of retries is not greater than a predetermined maximum number of retries only when the data is not the predetermined type of data; **[The Number Comparing Portion 330, the Second Retrying Type Determination Portion 300, and the Second Instruction Portion 310 in FIG. 10 of the Present Application are the means for performing this function step (page 14, lines 17-23 of the Present Application)].**

means for terminating retrying of reading or writing of data if the total count of retries is greater than the predetermined maximum number of retries *only when* the data is not the predetermined type of data; and **[The Number Comparing Portion 330, the Second Retrying**

Type Determination Portion 300, and the Second Instruction Portion 310 in FIG. 10 of the Present Application are the means for performing this function step (page 14, lines 23-25 of the Present Application)].

means for following a same order of retry types according to a retry table for both when the data is the predetermined type and when the data is not the predetermined type. [The Reading Performing Unit 130 and the Writing Performing Unit 140 in FIG. 5 and the Required Time Storage Portion 210 and the Required Time Selection Portion 220 in FIG. 8 and Table 1 of page 6 of the Present Application are the means for performing this function step.]

VI. Grounds of Rejection to be Reviewed on Appeal

Whether claims 1, 3, 5, 8, 12, 14, 16, and 19 are unpatentable under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,625,755 to Hirata et al.

Whether claims 2 and 13 are unpatentable under 35 U.S.C. 103(a) over U.S. Patent No. 6,625,755 to Hirata et al. in view of Makita et al. (JP Application No. 10-138420).

Whether claims 7 and 18 are unpatentable under 35 U.S.C. 103(a) over U.S. Patent No. 6,625,755 to Hirata et al. in view of Sato et al. (JP Application No. 09-217835).

Whether claims 9 and 20 are unpatentable under 35 U.S.C. 103(a) over U.S. Patent No. 6,625,755 to Hirata et al.

VII. Argument

The Examiner has rejected claims 1, 3, 5, 8, 12, 14, 16, and 19 as being anticipated under 35 U.S.C. 102(b) by U.S. Patent No. 6,625,755 to Hirata et al. (hereafter referred to as “Hirata”).

A. Overview of Hirata

Hirata is directed to having the host computer 10 of a disk apparatus 20 determine the characteristics of performing the retrying process, during initialization prior to the start of execution of any read/write command.

For example in the flow-chart of FIG. 5 of Hirata, the host computer 10 sets a respective maximum retry number N for each area of the disk 23 at step 103 as part of the initialization steps 101, 102, and 103 even before any read or write command is subsequently received at step 104. Referring to FIG. 1 of Hirata, the host computer 10 sets the respective maximum retry number N to a higher number for storage area A to be used for storing management data, and the respective maximum retry number N to a lower number for storage area B to be used for storing A/V data.

After such initialization steps 101, 102, and 103 in FIG. 5 of Hirata, the received read/write command is executed in step 106, and the retry process is executed upon detection of an error at step 107. The retry process in FIG. 5 of Hirata is encompassed by steps 111, 112, 113, 114, 115, 116, 117, and 118. Please note that none of such steps 111, 112, 113, 114, 115, 116, 117, and 118 for the retry process in FIG. 5 of Hirata includes determining whether the read/write data is of a predetermined type such as A/V data.

Similarly in the flow-chart of FIG. 6 of Hirata, the host computer 10 sets a respective time limit T for each area of the disk 23 at step 203 as part of the initialization steps 201, 202,

and 203 even before any read or write command is subsequently received at step 204. Referring to FIG. 1 of Hirata, the host computer 10 sets the respective time limit T to a higher time limit for storage area A to be used for storing management data, and the respective time limit T to a lower time limit for storage area B to be used for storing A/V data.

After such initialization steps 201, 202, and 203 in FIG. 6 of Hirata, the received read/write command is executed in step 207, and the retry process is executed upon detection of an error at step 208. The retry process in FIG. 6 of Hirata is encompassed by steps 212, 213, 214, 215, 216, 217, 218, and 219. Please note that none of such steps 212, 213, 214, 215, 216, 217, 218, and 219 for the retry process in FIG. 6 of Hirata includes determining whether the read/write data is of a predetermined type of data such as A/V data.

Rather, Hirata repeatedly touts the host computer 10 setting the type and value of the retry parameter N or T during initialization before any read/write command is even received by the disk apparatus 20 as stated at col. 5, lines 5-13:

That is, upon start of the system, the host computer 10 issues a command to the magnetic disk apparatus 21 placed thereunder to designate the limit values of retrying operation such as an upper limit of the number of times of retrying operations and the time required for retrying operation in each of a plurality of storage areas A, B, ...provided in the magnetic disk 23 constituting the storage medium and set the limit values in a retrying table 21a provided in the magnetic disk controller 21. (Emphasis added.)

Thus, such embodiments of FIGS. 5 and 6 of Hirata tout the host computer 10 dictating the type and value of the retry parameter N or T to be used even before any read/write command is received at the disk apparatus 20 let alone before the retry process is started.

Hirata also discloses another embodiment in FIG. 2 of Hirata where the host computer 10 dictates the type and value of the retry parameter N or T by sending such a retry parameter with each read/write command as stated at col. 8, lines 6-8:

....as shown in FIG. 2, the retrying limit value 21d may be given to **an individual command unit** given to the magnetic disk apparatus 20 **from the host computer 10** as one of parameters for the command. (Emphasis added.)

In this alternative embodiment of Hirata as well, the host computer 10 determines the type and value of the retry parameter T or N even before the read/write command is received by the disk apparatus 20 let alone before the retry process is started.

Furthermore, Hirata **repeatedly** touts that the **host computer 10** dictates the type and value of the retry parameter N or T to be used before any read/write command is even received at the disk apparatus 20. For example, the Abstract of Hirata states:

....the retrying limit value set in the retrying table from **the host computer** is used to optimize the retrying processing for data having different reliability or real time property of access such as management data and image/audio data stored in each of the storage areas A, B and the like individually. (Emphasis added.)

In addition, col. 5, lines 57-67 of Hirata again states:

First, when start such as boot of an information processing system is performed (step 101), the host computer 10 performs device recognition connection of the magnetic disk apparatus 20 placed thereunder (step 102). Then, **the host computer 10** performs setting of mode parameters using the command description block 30-1 and the vender unique mode parameter 30-2 as exemplified in FIG. 3 to the magnetic disk apparatus 20 as a part of an **initialization sequence** of the interface such as the SCSI, so that the **retrying limit** value 21d or the like is set in each of the plurality of storage areas A, B, ...(step 103). (Emphasis added.)

Furthermore, col. 6, line 64 to col. 7, line 7 of Hirata again states:

First, when start such as boot of an information processing system is performed (step 201), the **host computer 10** performs device recognition for recognizing connection of the magnetic disk apparatus 20 placed thereunder (step 202). Then, the host computer 10 performs setting of mode parameters using the command descriptor block 30-1 and the vendor unique mode parameter 30-2 as exemplified in FIG. 3 to the magnetic disk apparatus 20 as a part of an **initialization sequence** of the interface such as the SCSI, or that the **retrying limit** value 21d or the like is set in each of the plurality of storage areas A, B, ...(step 203). (Emphasis added.)

B. Claims 1, 3, 5, 8, 12, 14, 16, and 19 are not anticipated by Hirata

Claims 1 and 12 recite a method and apparatus of retrying a reading/writing of data including determining whether the data is the predetermined type of data (such as A/V data) such that a time limit T is used if the data is the predetermined type or such that the maximum retry number N is used instead if the data is not of the predetermined type.

For example, FIG. 2 of the Present Application shows steps 38, 40, and 42 for the retry process after each error is detected at step 36. Thus, the retry method and apparatus determines which one of the retry time limit T or the maximum retry number N is to be used “on-the-fly” during the retry process (i.e., after each read/write error is detected and thus after the retry process is already started as known to one of ordinary skill in the art).

In contrast as explained in detail above, Hirata repeatedly touts having the host computer 10 dictate the type and value of the retry parameter T or N to be used before the read/write command is even received by the disk apparatus 20 let alone before the retry process is started.

Thus, Hirata teaches away from an “on-the-fly” retry method and apparatus that varies the type of retry limit T or N to be used within (i.e., during) the retry method or apparatus (i.e., after detection of each read/write error and thus after the retry process has started), as recited in claims 1 and 12.

The Examiner cites col. 9, lines 1-8 of Hirata for teaching claims 1 and 12. However, col. 9, lines 1-8 of Hirata only states the effect of each flowchart of FIG. 5 alone or FIG. 6 alone in Hirata:

Further, there can be obtained the effect that the reading and writing command can be completed within the prescribed time required for the data such as the image data and the audio data of which the processing in real time is important and the retrying operation can be performed as much as possible to make reading and writing without

deterioration of the reliability for the data such as the management data of which the reliability is important. (Emphasis added.)

The Examiner on page 3 of the Advisory Action dated February 26, 2008 states that Hirata discloses another embodiment with such one sentence, implying a retry process of performing the flow-chart of FIG. 6 for A/V data and of FIG. 5 for management data.

However, such one sentence at col. 9, lines 1-8 of Hirata would hold true even if only FIG. 5 of Hirata is performed since N is less for A/V type data than for management data in just FIG. 5 of Hirata. Similarly, such one sentence would hold true even if only FIG. 6 is performed since T is less for A/V type data than for management data in just FIG. 6 of Hirata.

Thus, just the one sentence of col. 9, lines 1-8 of Hirata would not necessarily teach to one of ordinary skill in the art that the flow-chart of FIG. 6 of Hirata is performed for A/V data and that FIG. 5 of Hirata is performed for management data, “on-the-fly” within the retry process and apparatus (i.e., after the read/write error is detected), especially since Hirata repeatedly touts having the host computer 10 dictate the type and value of the retry parameter N or T before the read/write command is even received by the disk apparatus 20 let alone before the retry process is started.

Another words, since Hirata repeatedly touts having the host computer 10 dictate the type and value of the retry parameter N or T before the read/write command is even received by the disk apparatus 20 let alone before the retry process is started, Hirata actually teaches away from such an implication of deciding which retry parameter N or T is used “on-the-fly” within the retry process and apparatus (i.e., after the read/write error has been detected and thus after the retry process has started as known to one of ordinary skill in the art). Thus, Hirata actually

teaches away from combining the flow-charts of FIGS. 5 and 6 to result in claims 1 and 12 of the Present Application.

**The Examiner is respectfully reminded of the MPEP, §2141.03(VI) which states
“PRIOR ART MUST BE CONSIDERED IN ITS ENTIRETY, INCLUDING
DISCLOSURES THAT TEACH AWAY FROM THE CLAIMS.”**

Furthermore, anticipation of a claimed invention requires the presence in a single prior art document of each and every element of the properly construed claim. The Federal Circuit has set out the following requirements for anticipation pursuant to 35 U.S.C. §102:

...that a patent claim is anticipated under 35 U.S.C. §102 “must demonstrate, among other things, identity of invention.”...[O]ne who seeks such a finding must show that each element of the claim in issue is found, either expressly or under principles of inherency, in a single prior art reference, or that the claimed invention was previously known or embodied in a single prior art device or practice.

Minnesota Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc., 976 F.2d 1559, 1565

(Fed. Cir. 1992).

Because Hirata does not disclose, teach, or suggest (and even repeatedly teaches away from) all of the limitations of claims 1 and 12, the rejection of claims 1 and 12 under 35 U.S.C. §102(b) in view of Hirata should be withdrawn.

Claims 3, 5, and 8 which depend from and further limit claim 1, are allowable for at least the same reasons that claim 1 is allowable as stated above.

Claims 14, 16, and 19 which depend from and further limit claim 12, are allowable for at least the same reasons that claim 12 is allowable as stated above.

C. Rejection of Claims 2, 7, 9, 13, 18, and 20 under 35 U.S.C. §103(a)

Claims 2, 7, and 9 which depend from and further limit claim 1, are allowable for at least the same reasons that claim 1 is allowable as stated above.

Claims 13, 18, and 20 which depend from and further limit claim 12, are allowable for at least the same reasons that claim 12 is allowable as stated above.

Conclusions

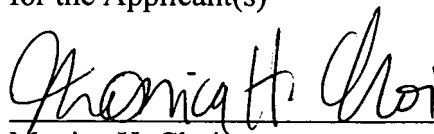
Please feel free to contact the undersigned should any questions arise with respect to this case that may be addressed by telephone.

In particular, the Applicants are open to any suggestions by the Examiner for any possible claim amendments that may place the claims in condition for allowance.

Respectfully submitted,
for the Applicant(s)

Dated: August 18, 2008

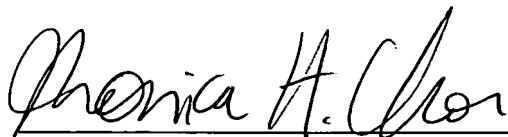
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CERTIFICATE OF MAILING

The undersigned hereby certifies that the foregoing REVISED APPELLANT'S APPEAL BRIEF is being deposited in the United States Postal Service, as first class mail, postage prepaid, in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 18th day of August, 2008.



Monica H. Choi
Reg. No. 41,671

Claims Appendix

Claim 1: A method of retrying reading or writing of data, comprising:

A. determining a required time period for performing a retrying type of reading or writing of the data;

B. terminating retrying of reading or writing of the data if the required time period is greater than a remaining retrying limitation time;

determining whether the data is a predetermined type of data;

performing the steps A and B only if the data is the predetermined type of data and not performing following steps C, D, and E if the data is the predetermined type of data:

C. determining a total count of retries for the reading or writing of the data;

D. performing another retry if the total count of retries is not greater than a predetermined maximum number of retries;

E. terminating retrying of reading or writing of data if the total count of retries is greater than the predetermined maximum number of retries; and

performing steps C, D, and E only if the data is not the predetermined type of data;

wherein a same order of retry types is followed according to a retry table for both when the data is the predetermined type and when the data is not the predetermined type.

Claim 2: The method of claim 1, further comprising:

starting to time down from the retrying limitation time after a request for reading or writing of the data is generated.

Claim 3: The method of claim 1, further comprising:
determining whether an error has occurred during an initial reading or writing of the data
or during a prior retry of reading or writing of the data; and
performing steps A and B if said error has occurred.

Claim 4 (**Canceled**).

Claim 5: The method of claim 1, wherein the predetermined type of data is A/V (audio
or video) data.

Claim 6 (**Canceled**).

Claim 7: The method of claim 1, further comprising:
determining the retrying type of reading or writing from a sequential order of retrying
types as stored within a lookup table; and
determining the required time period for the retrying type from the lookup table.

Claim 8: The method of claim 1, further comprising:
performing a retry of reading or writing the data for the retrying type if the required time
period is not greater than the remaining retrying limitation time.

Claim 9: The method of claim 1, wherein the data is read or written within a hard disc drive.

Claims 10-11 (**Canceled**).

Claim 12: An apparatus for retrying reading or writing of data, comprising:

- a required time selection portion for determining a required time period for performing a retrying type of reading or writing of the data;
- means for terminating retrying of reading or writing of the data if the required time period is greater than a remaining retrying limitation time only when the data is of a predetermined type;
- a data identification unit for determining whether the data is the predetermined type of data;
- a counting portion for determining a total count of retries of reading or writing of the data;
- means for performing another retry if the total count of retries is not greater than a predetermined maximum number of retries only when the data is not the predetermined type of data;
- means for terminating retrying of reading or writing of data if the total count of retries is greater than the predetermined maximum number of retries only when the data is not the predetermined type of data; and

means for following a same order of retry types according to a retry table for both when the data is the predetermined type and when the data is not the predetermined type.

Claim 13: The apparatus of claim 12, further comprising:

a timing unit for starting to time down from the retrying limitation time after a request for reading or writing of the data is generated.

Claim 14: The apparatus of claim 12, further comprising:

means for determining whether an error has occurred during an initial reading or writing of the data or during a prior retry of reading or writing of the data; and

means for performing any retry of reading or writing of the data when said error has occurred.

Claim 15 (**Canceled**).

Claim 16: The apparatus of claim 12, wherein the predetermined type of data is A/V (audio or video) data.

Claim 17 (**Canceled**).

Claim 18: The apparatus of claim 12, further comprising:

a storage portion for storing a lookup table having a sequential order of retrying types used for determining the retrying type and the required time period for the retrying type.

Claim 19: The apparatus of claim 12, further comprising:

means for performing a retry of reading or writing the data for the retrying type if the required time period is not greater than the remaining retrying limitation time.

Claim 20: The apparatus of claim 12, wherein the data is read or written within a hard disc drive.

Claims 21-22 (**Canceled**).

IX. Evidence Appendix

None.

X. Related Proceedings Appendix

None.